The Summary of Family Properties

Family I
ALKALI Metal Family

- a. **ALL** soft metals

- b. relatively **LOW** densities

- c. **NEVER** found free in nature

■ d. **EASILY** corroded by air

■ e. react **VIGOROUSLY** with cold water, to release **HYDROGEN** gas and a solution of **METAL** hydroxide.

■f. react with oxygen, forming oxides with the formula $\underline{M_2O}$

■g. react with halogens to form compounds with the formula $\underline{MX}$

Family II
<u>ALKALINE</u> Earth Metal Family

- a. all are silvery - gray **<u>METALS</u>**

- b. Harder than alkali metals.

- c. react with **<u>ACIDS</u>** and more slowly with **<u>WATER</u>**, to release **<u>HYDROGEN</u>** gas

- b. react with oxygen, forming oxides with the formula <u>MO</u>

- d. react with halogens to form compounds with the formula **<u>MX₂</u>**

Family III

- a. all have **<u>METALLIC</u>** properties

- b. Gallium, indium, and Thallium are rare with few uses.

■c. react with **ACIDS**, but not with **WATER**

■d. react with oxygen, forming oxides with the formula M_2O_3

■e. react with halogens to form compounds with the formula **MX$_3$**

Family IV

- a. **CARBON** and **SILICON** are non-metal semi conductors.

- b. germanium, **TIN** and **LEAD** have metallic properties

- c. react only with **<u>STRONG</u>** acids.

- d. react with oxygen, forming oxides with the formula **<u>MO₂</u>**

- e. react with halogens to form compounds with the formula **<u>MX₄</u>**

Family V

- a. **NITROGEN**, phosphorus and **ARSENIC** are non-metals

- b. **ANTIMONY** and bismuth are metals

■c. do not react with **WATER** or acids

■d. react with oxygen, forming oxides with the formula M_2O_3 or M_2O_5

■f. react with hydrogen to form compounds with the formula H_3X

Family VI

- a. **ALL** are non-metals, except **POLONIUM**

- b. react with hydrogen to form compounds with the formula **H_2X**

Family VII
__HALOGEN__ family

- a. All are __NON-METALS__

- b. __NEVER__ found free in nature

■c. React readily with **METALS**

■d. Most are very **POISONOUS**

■ e. Some are **GASES**. **BROMINE** is a liquid and **IODINE** is a solid

■ f. react with hydrogen to form compounds with the formula **HX**

Family VIII
NOBLE Gas Family

- a. all are **GASES**

- b. found in the **atmosphere** in very small amounts.

■c. they **<u>DO</u> <u>NOT</u>** react with other elements